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Case 7116-1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of	:	Confirmation No. 8469
	:	
Herbert Busse et al.	:	Art Unit 3673
	:	
Serial No.: 10/615,400	:	Examiner Patel
	:	
Filed: July 9, 2003	:	
	:	
For: LOW-FRICTION SEAL	:	

**AMENDED APPEAL BRIEF**

Honorable Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This appeal brief is responsive to the Notice of Non-Compliant Appeal Brief mailed December 19, 2005 and has been amended to comply with the format requirements of 37 CFR 41.37(c).

The fee for filing a brief in support of an appeal has previously been paid therefore no fees are believed to be due at this time. If that determination is incorrect, debit the deficiency to Deposit Account No. 19-2105 and notify the undersigned.

**REAL PARTY IN INTEREST**

The real party in interest is the assignee, Herbert Hanchen KG.

**RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that directly affect or are directly affected by or have a bearing on the Board's decision in this appeal.

**STATUS OF CLAIMS**

The application at filing comprised claims 1-14. In a preliminary amendment, the original claims were cancelled and new claims 15-33 were added.

In response to a restriction requirement, claims 15-18, 20-24 and 32 were provisionally elected and claim 19, 25-31 and 33 were withdrawn.

In a first Office action, elected claims 15-18, 20, 24 and 32 were rejected and claims 21 and 22 were objected to. In a second and final Office action, elected claims 15-18, 20, 24 and 32 were rejected and claims 21 and 22 were objected.

The claims on appeal are twice rejected claims 15, 16, 17, 18, 20, 24 and 32.

#### **STATUS OF AMENDMENTS**

No amendments have been filed subsequent to the final Office action.

#### **SUMMARY OF CLAIMED SUBJECT MATTER**

The invention is a low friction seal assembly for high and low pressure applications. For example, figure 1 illustrates the assembly when providing a seal for a piston rod whereas figure 7 shows the assembly when providing a seal for a hydraulic cylinder.

The low friction seal assembly recited in independent claim 15 comprises a guide element 12 for guiding a shaft 16 (figure 1; substitute specification page 11, lines 18-23; page 12, lines 1-2). The guide element 12 is provided with a groove 30 having a bottom wall 38 and a first side wall 34. A sealing ring 44 is received within the groove 30, the sealing ring 44 has a cylindrical inner surface 46 adapted to be positioned adjacent a shaft surface to be sealed, as well as an end face 50 disposed adjacent the groove first side wall 34 and an outer cylindrical surface 48 disposed adjacent the groove bottom wall 38. A seal 36, 37 is disposed between the sealing ring end face 50 and the first sidewall 34 of the groove 30 so that any pressure occurring between the groove bottom wall 38 and the sealing ring

outer cylindrical surface 48 is maintained less than the pressure between the shaft to be sealed and the guide element 12 (substitute specification page 4, lines 9-16; page 5, lines 1-10; page 15, lines 3-8; page 16, lines 3-9; page 17, lines 16-24; and page 18, lines 16-22).

There is no means plus function language nor step plus function language as permitted under 35 U.S.C. 112, sixth paragraph in independent claim 15 or dependent claims 17, 18, 20 and 24.

The low friction seal of independent claim 32 comprises a guide element 12 for guiding a shaft (figure 1; substitute specification page 11, lines 18-23; page 12, lines 1-2). The guide element 12 is provided with a groove 30 having a bottom wall 38 and a first side wall 34. A sealing ring 44 is received within the groove 30, the sealing ring 44 has a cylindrical inner surface 46 adapted to be positioned adjacent a shaft surface to be sealed, as well as an end face 50 disposed adjacent the groove first side wall 34 and an outer cylindrical surface 48 disposed adjacent the groove bottom wall 38. A seal 36, 37 is disposed between the sealing ring end face 50 and the first sidewall 34 of the groove 30 so that when the seal 36, 37 is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between the cylindrical

inner surface 46 of the sealing ring 44 and the shaft surface to be sealed with a substantially continuous decrease in pressure occurring along the length of the sealing ring 44 (substitute specification page 4, lines 9-16; page 5, lines 1-10; page 15, lines 3-8; page 16, lines 3-9; page 17, lines 16-24; and page 18, lines 16-22).

There is no means plus function language nor step plus function language as permitted under 35 U.S.C. 112, sixth paragraph in independent claim 32.

#### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

(1) Claims 15, 24 and 32 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,976,444.

(2) Claims 16-18 and 20 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,976,444 in view of U.S. Patent No. 3,743,304.

#### **ARGUMENT**

##### **The Legal Standard of Anticipation**

A claim is anticipated if every element in the claim is found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete

detail as contained in the ... claims." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claims. There can be no differences between the claimed invention and the disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Res. Found. v. Genentech Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

#### **The Legal Standard of Obviousness**

In rejecting claims under 35 U.S.C. § 103(a), it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In doing so, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988). These showings by the examiner are an essential part of complying with

the burden of presenting prima facie obviousness. *In re Oetiker*, 24 USPQ2d 1433, 1434 (Fed. Cir. 1992).

The prior art combination of references must teach or suggest all the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

**REJECTION UNDER 35 U.S.C. § 102(b) OVER**  
**U.S. PATENT NO. 4,976,444 TO RICHARDS**

**Claim 15, Claim 24 and Claim 32**

***1. Richards does not disclose all elements recited in the claims.***

Specific limitations in the rejected claims are not disclosed in Richards. First, a groove extending within a guide element for receiving a sealing ring as recited in each of claims 15, 24 and 32 is not disclosed in Richards. The annular sealing element 72 of Richards is received within a four wall enclosure formed from cooperating notches provided in the elongated pump case 12 and impeller outer shroud 42, respectively.

A sealing ring cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed as recited in each of claims 15, 24 and 32 is also not disclosed in Richards. The inner axial surface 80 of sealing element 72 in Richards is

not adjacent shaft 38. The inner axial surface 80 of Richards is adjacent the outer shroud 42 of impeller 38. See figure 1.

The examiner appears to take the position that structure recited in the claims which acts upon a shaft (guide element 12), is disposed or positioned relative to a shaft (cylindrical inner surface 46 of the sealing ring 44) or is subjected to a pressure between it and the shaft (guide element 12) is an intended use and therefore the outer shroud 42 in Richards may be substituted for the claimed shaft (final rejection, page 2, paragraph 2, line 4). This is improper for the following reasons. First, each of the above elements is written as a structural limitation within the body of claim 15 and not as a preamble statement reciting purpose or intended use.

Accordingly, the claim does not contain a statement of intended use. See MPEP § 2111.02. Further, the disclosure of Richards fails to establish element 72 is somehow inherently adapted to seal shaft 38. All limitations in claims 15, 24 and 32 are entitled to patentable weight and Richards fails to disclose both the guide element and the cylindrical inner surface of the sealing ring.

Richards also fails to disclose a seal disposed between a sealing ring end face and a groove first side wall so that any pressure occurring between the groove bottom wall and the



sealing ring outer cylindrical surface is maintained less than the pressure between the shaft and the guide element as recited in each of claims 15 and 24. The fluid pressure occurring between shaft 38 and guide element 12 in Richards is low pressure whereas the fluid pressure in region 48 is high pressure. See column 4, lines 15-16 and 24-25 of Richards.

The rejection regarding claim 32 is incorrect for similar reasons; namely, Richards fails to disclose a seal disposed between a sealing ring end face and a groove first side wall so that when the seal is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between said cylindrical inner surface of the sealing ring and the shaft surface to be sealed with a substantially continuous decrease in pressure occurring along the length of the sealing ring.

**REJECTION UNDER 35 U.S.C. § 103(a) OVER**  
**U.S. PATENT NO. 4,976,444 TO RICHARDS IN**  
**VIEW OF U.S. PATENT NO. 3,743,304 TO LINDBLOOM**

**Claim 16, Claim 17, Claim 18 and Claim 20**

***1. Richards in combination with Lindeboom does not disclose all the features in the claims.***

Claims 16, 17, 18 and 20 depend from independent claim 15. As discussed in the preceding section with respect to claim 15,

Richards fails to disclose (1) a groove extending within a guide element for receiving a sealing ring, (2) a sealing ring cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed and (3) a seal disposed between a sealing ring end face and a groove first side wall so that any pressure occurring between the groove bottom wall and the sealing ring outer cylindrical surface is maintained less than the pressure between the shaft and the guide element. These limitations are also lacking in Lindeboom. Accordingly, the rejections of claim 16, claim 17, claim 18 and claim 20 under 35 U.S.C. § 103(a) are improper.

**2. There is no prior art suggestion for combining Lindeboom with Richards.**

Lindeboom provides a floating seal for sealing a shaft 12. In embodiments where the seal (flange) is provided with internal pressure communicating passageways (figures 4, 6 and 7) the high pressure side of the seal is provided with a coaxial groove within which are disposed a resilient O-ring and a pressure dam ring axially slidably superimposed on the O-ring for establishing pressure dams against leakage around the flange.


It is stated in the rejection (final rejection, pages 3-4) that one of ordinary skill would be motivated to provide the O-

ring and pressure dam ring of Lindeboom in the Richards device to provide seals under high pressure and temperature. However, the seal in Richards is already adapted for high pressure applications (column 4, lines 24, 41) and the composition of the seal can easily withstand temperatures in excess of five hundred degrees Fahrenheit (column 6, line 45). The reasoning relied on in the rejection for combining the references is without basis and certainly not suggested by the prior art. In addition, the O-ring and pressure dam ring of Lindeboom is not for adapting the seal to high and low temperature applications as stated in the final Office action. See Richards at column 3, lines 20-24. The motivation for the combination is not based upon a prior art suggestion but rather, appellant's own specification. The rejection of each of claims 16-18 and 20 is therefore improper.

For the foregoing reasons and in view of the record, appellant submits the examiner erred in rejecting the claims and requests the rejection be reversed.

Respectfully submitted,

Date: JANUARY 10, 2006

  
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**CLAIMS APPENDIX**

15. A low friction seal assembly comprising:

- a) a guide element for guiding a shaft, said guide element having a groove extending therein, said groove having a bottom wall and a first side wall;
- b) a sealing ring, said sealing ring received within said groove, said sealing ring having a cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed, an end face disposed adjacent said groove first side wall and an outer cylindrical surface disposed adjacent said groove bottom wall; and
- c) a seal, said seal disposed between said sealing ring end face and said groove first side wall so that any pressure occurring between said groove bottom wall and said sealing ring outer cylindrical surface is maintained less than the pressure between the shaft and said guide element.

16. A low friction seal assembly as in claim 15 and wherein said seal includes an annular sealing element in the form of a plastic sealing ring coaxially aligned with said sealing ring and having a width less than that of said sealing ring and a thickness greater than the distance extending between said groove first side wall and said sealing ring end face.

17. A low friction seal assembly as in claim 16 and wherein said seal further includes a formed part, said formed part is operatively associated with said plastic sealing ring so that when said seal is charged with a pressure medium, said formed part will press said plastic sealing ring against said groove first side wall.

18. A low friction seal assembly as in claim 17 and further including:

a) an annular groove, said annular groove extends into said sealing ring end face and is configured to receive said formed part so that when said seal is charged with a pressure medium said formed part is deformed in such a manner that the force of said plastic sealing ring pressing against said groove first side wall is caused to be increased.

20. A low friction seal assembly as in claim 17 and wherein said formed part is a ring, said ring is at least one of flexible and elastic and is constructed from at least one of plastic and rubber material.

24. A low friction seal assembly as in claim 15 and further including:

a) a second side wall, said second side wall associated with said guide element groove; and

b) a drainage channel, said drainage channel operatively associated with said second side wall and extending outwardly through said guide element from said second side wall.

32. A low friction seal assembly comprising:

a) a guide element for guiding a shaft, said guide element having a groove extending therein, said groove having a bottom wall and a first side wall;

b) a sealing ring, said sealing ring received within said groove, said sealing ring having a cylindrical inner surface adapted to be positioned adjacent a shaft surface to be sealed, an end face disposed adjacent said groove first side wall and an outer cylindrical surface disposed adjacent said groove bottom wall; and

c) a seal, said seal disposed between said sealing ring end face and said groove first side wall so that when said seal is subjected to a pressure medium, propagation of the pressure medium is caused to take place only between said cylindrical inner surface of said sealing ring and the shaft surface to be

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sealed with a substantially continuous decrease in pressure occurring along the length of said sealing ring.

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**EVIDENCE APPENDIX**

None.



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**RELATED PROCEEDINGS APPENDIX**

None.